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AUTHOR Palmer, David
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ABSTRACT

In order to provide meaningful unit cost information, the librarian needs an accurate concept of what data should be measured and why. The dimension which has been conspicuously absent in library statistics is interpretation of the data which is reported, and the correlation of one set of data with another to reach a defensible conclusion. For the most part, librarians have been data-gathering rather than statistics producing. The analysis and the creative juxtaposition of quantitative measures to deduce qualitative factors is the very essence of the art of statistics. Major recommendations include: (1) statistics should compare your library last year with your library this year, and five years hence; (2) the data gathered should be meaningful to your library; (3) sampling techniques and contact with experts who deal with the problems our work touches upon should be tried and (4) national or state reporting should not take precedence over statistical analysis that is relevant to your library. (AF)

Measuring Library Output

by

David Palmer, Head
Reader Services
New Jersey State Library

Paper presented at an Institute on Program Planning and Budgeting Systems for Libraries at Wayne State University, Detroit, Michigan, Department of Library Science, Spring 1968

Introduction
by
Genevieve Casey
Associate Professor, Library Science, Wayne State University

The following paper was presented at an institute on Program Planning and Budgeting Systems for Libraries, held at Wayne State University under the Higher Education Act, Title IIB, in the spring of 1968.

The intent of the institute was to introduce administrators and finance officers of large libraries, public, state, and academic to the principles and procedures of PPBS.

Each participant in the institute brought with him the most recent budget document from his own library, and with the help of the institute staff, attempted to convert it into a PPBS presentation.

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The present move toward program planning and budgeting systems for libraries catches the profession at an awkward point in time. Just when it has finally asked itself whether some of its time-honored statistics are really meaningful, the budget boys are asking for more quantitative reporting.

Let me take circulation figures as an example of this delemma. The ALA Handbook on Library Statistics[1/] suggests that the comparison of circulation figures among libraries is of doubtful value for a number of reasons -- varying loan periods; renewal policies; methods of counting circulation of deposit collections; double counting in interlibrary loan transactions, to cit, a few. When it comes to reporting on a national scale, public, school, college and university libraries are told "forget it". Gross circulation figures, except for their value in determining trends within a library's activity level, are more often applied to status and prestige, than to any meaningful measurement of impact upon the library's clientele.

But circulation figures can be viewed from other angles. Workload measurement, for example, or wear on the library's basic book stock. In other words, they may constitute data which might be useful for budgetary considerations, for internal management purposes, and decision making.

I assume we are to address ourselves to this frame of reference when we consider library statistics at this Institute, rather than to our habitual use of statistics to compare our own library to another of similar nature, or that somewhat curious need of the profession to prove annually that library services really are important.

I said that I assume this, because, frankly, I am here as much to learn as you are, and claim no expertise in program planning and budgeting. There are times, in fact, when I feel whatever I am thought to know about statistics was absorbed through osmosis, and not entirely without protest.

There was a joke which was popular when I worked with the Statistics Coordinating Project some years back:

> "Statistics are like bikinis: what they reveal is interesting; what they conceal is vital."

I hope that the following observations will contribute to an appreciation of the more vital elements.

It has always astounded me that library statistics, when you get down to the nitty-gritty of exactly what is to be included and excluded, and how, can become such an emotion-packed subject. I have seen embattled librarians, eyes blazing, in mortal combat over a statistical definition. I hope that the terminology I use will not be the subject of heated dispute in the discussion periods which follow, but will serve as a vehicle for exploring the raw material upon which PPBS must feed.

Let me go back to circulation, for a moment, as one of the library's outputs which needs measuring. Certainly, it is an activity which incurs

costs, and therefore affects program. There are staff costs, and attendant use of space which should be considered. Then there are hidden costs, like equipment and maintenance thereof, postage, shipping, and supplies. Then there are really obscure costs of rebinding, replacement of lost items and the percentage of administrative time devoted to the Circulation Section.

In other words, an object of expenditures budget could be deduced for the circulation program including all these factors, and a ratio developed against the total circulation. The result would be a unit cost per item circulated.

You have no doubt already guessed that this statistic will seem monstrous. It's one which libraries have tried to conceal from the public for years, and with good reason. It overlooks certain value judgments as to why the library exists. Granted, the costs of reference service, advisory service, and all other programs are excluded from our figure, there remains the gnawing apprehension that the question will arise, "Is circulation worth the expense?"

We are a singularly money-conscious society. Though we may protest that "we are not materialistic, everyone else is," each of us attaches a value judgment when we see the dollar sign. For the purpose of this talk, I tried to determine the approximate cost of circulating a book from the New Jersey State Library, using the method I just outline. I added all the salary figures for the Lending Section, computed fringe benefits, a factor for space costs and a rough estimate of prorated administrative cost, figured in supplies, postage, telephone, equipment and miscellaneous items; then divided the resultant sum by the total circulation for last year.

Mind you, this figure excludes the cost of the book stock and all the technical processes which go into its preparation. For the moment, I shall consider this a separate program and concentrate on circulation activities only. The resultant figure was about $1.54 to circulate one book. My monetary hackles rise just at the thought of it.

There is, of course, a hidden trap in the example: this is the assumption that the unit cost per circulation is the appropriate level by which we are to control, or at least measure, the program. Does it <u>really</u> matter to an academic library, for instance, just how much circulation costs? Within limitations of efficiency of operation, I doubt it. Circulation is not the goal of a college library: support of curricula is. If the circulation function is necessary to support the primary educational goals of the institution, it doesn't matter what the cost.

Within our analysis of the circulation activity, however, there are other, subordinate factors which <u>can</u> be highly useful tools for management and budget determination. For example, we might be able to answer some of the following questions:

1. How many units can be handled by each type of position associated with this activity?

2. If increased volume can be anticipated, at what point will another staff member become necessary: or, if a predictable number of man-hours can be ascertained, is additional part-time help better justified?

3. What will be the effect of increased circulation upon the supplies and equipment accounts? Upon the postage?

If we are to answer these questions which are of an internal management

nature, we are talking of a different type of library statistic than the profession has been giving so much attention to recently. And we would have to be willing to keep tallies and much more detailed numerical data than we have been used to. Let me cite some of them which have been inferred already:

1. number of items circulated
   a. directly
   b. through interlibrary loan
2. number of renewals transacted
3. number of reserves taken
4. number of overdue notices sent
   a. by form letter
   b. by phone
5. how many of the above are performed per staff member
6. what percentage of his time is devoted to each task
7. how many of each type of form and cared are required
8. what other supplies are involved
9. what is the postage for items circulated by mail (this would apply to state libraries, especially, and to interlibrary loan)
10. what is the capacity of the present equipment used
11. how near capacity are we now
12. what is the annual depreciation factor for this equipment

Before you develop apoplexy at the thought of this record-keeping, or are lulled asleep by this level of detail, let me assure you that sampling techniques and spot-check surveys are possible here. Educated estimates would have to be developed if we are to afford to be so efficient.

Moreover, some of these items are of a purely inventory nature; other could be determined once and be perfectly serviceable from year to year.

In a microcosmic way, I have led you rather far from "measuring library output." This is illustrative of some of the factors which PPBS may raise for libraries, however, and I personally feel we will have to exercise great judgment in designingthe kinds of programs we wish to subject to this kind of analysis.

What is a library's output, anyhow? I dare say many of us would prefer to define it in sociological terms, or in terms of its influence upon the parent institution and impact upon its clientele -- deeper education, better research, wiser administration, a fuller life. But these values are highly subjective, and certainly not measurable in any meaningful way to a budget analyst. I don't mean to imply that they are any the less real, but that for the foreseeable future, we will have to deal with the kinds of dry figures we have been considering in the area of circulation.

There <u>are</u> other outputs to consider -- reference work, for example. Frankly, I am unwilling to accept the present concept abroad in the profession that reference work presents so many variables, it should not be reported statistically. Indeed, I think it possible that the swing to Program Planning and Budgeting will show that this activity <u>is</u> subject to statistical analysis, and even unit-cost determination. After all, in this context, we are not attempting to compare this activity in one library against that of another. Our primary concern now, is to prove that the service in a particular library is being rendered efficiently,

and that any increase in funds requested for its operation is related directly to increased demand, need, or to increased quality.

First, all the costs for this activity can be totaled in the same way as circulation -- personnel, space, telephone, books, supplies, administration, and so forth. Second, a gross count of reference questions asked can be maintained, as long as we can devise a definition for the term "reference". This is not quite as possible as one might imagine, since I am not talking about a universal definition which every library administrator will accept. Each library can determine for itself what is going into its own gross count, which it uses for its own management purposes. Broad acceptance of a more universal definition for purposes of comparison can come later. I am not particularly concerned, for example, that some questions take longer than others: some books are fatter than others, and we don't count the number of pages circulated. Nor am I concerned that some questions are more serious than others: some books are more serious than others. Then, there is always the flack that one reference assistant is more skilled than another. One can argue this anywhere in the library, and I dare say some use of library materials has been impeded because one of the shelvers is less likely to find an item on demand than another.

The gross count of reference questions asked can be categorized in various ways in order to refine the unit-cost factor. Among the more obvious, is that of time spent on the individual question. Was it a "spot-reference" question, or did it constitute a "search". Again, for the moment, we can define these categories to our own convenience --

say, less than ten minutes spent; more than ten minutes. Maybe we will want a finer breakdown. Perhaps we will find it expedient to separate those received by phone from those submitted in person, or by mail.

One could keep on with an inventory of all the counts a library can keep to show what it is doing with the funds provided: the number of bibliographies issued, articles abstracted, public programs (that is, the number of films shown during the year, or lectures and concerts sponsored, along with a dutiful record of attendance).

No doubt you have seen, as I have, State Library statistics on consultant services: the number of libraries visited, how many were public, county, school, college, institution, etc.: along with the number of miles traveled, correspondence handled, trustees contacted, institutes and workshops (again with a tabulation of attendance). But there are times when I feel that all these figures do is to prove that librarians can count, and that they can account for the hours for which they were paid.

I am not knocking the data represented by the figures: I am suggesting that the profession has been much more occupied with how various activities are to be counted, rather than why. And this brings me to a dilemma with which I've been wrestling ever since taking on this assignment. If I am asked, "How do you count group services?" the obvious answer is insulting: "One, two, three, four." You count any library activity like anything else. If I am asked "what data should I be counting?" The only honest reply is evasive: "What is it you want to measure."

The dimension which has been conspicuously absent in library statistics

is interpretation of the data which is reported; correlation, for example, of one set of figures to another, or of all the figures to the announced goals of the year, or of the next five years.

I was interested in Donald Dennis's remark in his report on Simplifying Work in Samll Libraries.[2] He observed that:

> Unless a specific use is made of the breakdown of daily circulation totals into the major Dewey Decimal classification numbers (100's, 200's, 300's), it should be eliminated altogether. Many librarians record this breakdown, at considerable expenditure of staff time, and yet few put this information to any specific use. Who has a specific policy response, for example, to the knowledge that the circulation of books in the 300's increased from 555 to 667 last year?

Is it possible that a policy response, as Dennis puts it, can be expected, using this date? Of course it is -- but then we predicate a clear policy to begin with, one which is tailored to the goals of the institution, and for which the data is essential.

Why do we collect the data? It seems to me that Program Planning and Budgeting Systems can do much to focus our attention on this much more important issue. It provides a rationale by which we can break a certain vicious circle we have tended to be caught up in for a long time. Let me illustrate: we need data in order to change policy and formulate new policy. What data is to be gathered, has to be decided on in advance, so that we have the figures at the end of the year. In

order to decide in advance, we need policy. For policy we need data, etc. PPBS takes a stand. It says, first define your objectives. Stratify them across a time span, assigning priorities -- then suggest alternative means for achieving them. At that point, and only until then, do we seek data to assist us in making the wisest choice. We may find that we don't have sufficient data to answer all the questions which arise at that moment. If so, then we know the kinds of data we have to collect, and may have to reserve judgment until it is available--but we have a concrete why for gathering it.

A moment ago, I referred to the singular absence of interpretation of library statistics, and the correlation of one set of data with another to reach a defensible conclusion. For the most part, the profession has been data-gathering, rather than statistics producing. The analysis and the creative juxtaposition of quantitative measures to deduce qualitative factors is the very essence of the art of statistics. Let me assure you that I only perceive this from afar and will have to field any questions which probe into the real intricacies of statistical measurement and sophisticated research methods.

But I feel I should warn you that the ALA publications on statistics which have come out recently, and those which are in process, do not really address themselves to the fine points which you will need to measure your performance against the objectives you set for your library. The Handbook is a useful guide to data-gathering, and is a start toward the development of a common vocabulary--but it will not help you to make some of the hard-driving decisions you will be obliged to make when you

tackle PPBS and articulate your library goals.

You will have to look elsewhere for this, particularly into your won soul and into the literature of social consciousness. I know I am off my subject here, but it is evident to me that library objectives which ignore the great social forces around us are not only unrealistic, they are dangerous. I am going to be looking much more closely at the statistics of other disciplines, those which describe the root causes of social unrest, than at how many microfilm reels a given library owns, and how many times they were used. From the former, perhaps we can perceive real objectives, and design services which cope with the rate of change which characterizes the last third of the Twentieth Century.

To get back on the track, however, there have been a few studies which give glimpses into the kind of derived data which statistical methods can produce for the library administrator--studies which go beyond data gathering. First, let me commend to your attention the monograph by Dr. Kenneth Beasley entitled "A Statistical Reporting System for Local Public Libraries".[3] Dr. Beasley, at that time, a professor of Political Science and Public Administration at the Pennsylvania State University, was able to take a fresh look in this area, unhampered by the musty traditions of librarianship, and considerably enabled by his solid background in research methodology. He has a number of points to make which have given me food for thought, but of particular interest are those which deal with measuring the collection. For example, he suggests a method of reporting periodicals held which would tend to reveal the quality or depth of the collection. His

formula for deriving an index by which to compare the research capability of one library's periodical collection with that of another, is too complex for me to describe at this moment, but is based upon the number of periodical titles indexed in standard guides and upon a classification of types of periodicals which are held: Professional Journals; Current Serious Feature Magazines; Technical and Special Journals; News Magazines, etc. Each of these types is assigned a given weight, and the equation is carefully designed to produce a figure which may not tell you whether the collection is good or bad, but will tend to describe the function for which it is best suited, and whether one can reasonably expect the library to provide research capacity as against browsing or mild reference materials.

Ralph Blasingame has also contributed statistical techniques for determining whether a library's collection is designed to meet the particular mission which the library might be expected to serve within a library system. Again, I must defer the technical particulars, but it is based upon the age distribution of the collection, and upon the assumption that large percentages of older volumes are appropriate for research libraries, but constitute a liability for the local public which occupies the first or second rung in a system hierarchy. Let me refer you to his survey of the Pottsville (Pa.) Public Library, completed a few years back.[4/]

I think you can see that this type of statistical manipulation can, very possibly, provide data which will help determine whether the library is meeting its objective or not. We are at the very cutting edge of the development of such techniques. I am convinced that it <u>is</u> possible to measure a library's output in the significant terms which are demanded by

PPBS. Bet we are going to have to change our outlook on what it is we should be counting, and we are going to have to rely upon the expertise of other disciplines much more conversant and knowledgeable in research techniques. It is easier to expect, within our present concept of library education, that we can educate the statistician, the sociologist, the political scientist, as to the objectives of librarianship, than it is to expect the librarian, even armed with a doctor's degree in Library Service, to display the skills required to measure quality and impact of library services. Let me urge you not to mend your fences, but tear them down when they separate you from your desired goal, and to develop an interdisciplinary respect which behooves professional humility.

You and I both know that I have completely skirted my assignment. To summarize, I submit the following observations and recommendations:

First: For the purposes of PPBS, don't rely on statistics which are designed to compare your library with another library. Think out the factors which will best compare your library last year, with your library this year, and five years hence.

Second: Be prepared to keep any counts whatsoever, whether scoffed at by the profession or not, if they can assist you in this comparison. The cost benefits of quality control and progress toward viable objectives are worth considerable investment, and you will be surprised by the support you will find in this endeavor from budget officers.

Third: Do not hesitate to use sampling techniques, and don't hesitate to ask for expert help in designing the sample which is defensible and illustrative.

Fourth: Don't expect the American Library Association to solve all your statistical dilemmas. Its activity in this area is directed toward national reporting, and, at the moment, it is preoccupied with improving traditional library data-gathering rather than devising new statistical techniques. Conversely, do not reject the helpful guidelines which emanate from ALA. Accept, insofar as possible, its definitions and standards, since you will continue to need comparative data of other libraries at times to justify you budget requests.

Fifth: Only you can determine what it is you need to measure to satisfy the data demands of a program-planning and budgeting system. Do not confuse what data you need for you own well-being with what is needed for state or national reporting. Be prepared to keep two or more statistical summaries, but make sure you keep the one which justifies your paycheck.

Sixth: Never assume that quantitative data cannot be gathered to illustrate qualitative output. You and I simply do not know enough of the techniques, either available or capable of being developed. There is nothing, given the lever, we cannot measure. That we are presently naive and inept does not mean the problem is without solution.

Seventh: (and closely related to the foregoing): Reach out for help from experts who deal with the problems our work touches upon. They will be complimented, and we will be praised for our good judgment in coming to them.

Eighth: Concentrate upon the society, everchanging and restless as it is, which we are privileged to serve. The final answer as to why we measure our services and why we set objectives, rests here.

Footnotes

1. Library Statistics: A Handbook of Conceptions, Definitions and Terminology. American Library Association, 1966.

2. Simplifying Work in Small Public Libraries. By Donald D. Dennis. Drexel Institute of Technology, 1965.

3. A Statistical Report System for Local Public Libraries. By Kenneth Beasley. Pennsylvania State Library (Monograph No. 3), 1964.

4. The Book Collections in the Public Libraries of the Pottsville Library District: A Date and Subject Distribution Study. By Ralph Blasingame. Pottsville (Pa.) Free Public Library, 1967.